Claims:

1.   A switching device for telecommunication networks, comprising:

- a number of I/O ports for inputting incoming data streams and outputting outgoing data streams of arbitrary protocols,

- a switching fabric SF for handling internal data streams,

- a number of adaptation functional blocks AFBs associated with said switching fabric SF, each AFB being capable of performing at least one of the following adaptation functions:

   i.   converting one or more of said incoming data streams or of portions of said incoming data streams into one or more said internal data streams suitable for being handled in the SF; and

   ii.   converting one or more said internal data streams handled by the SF into one or more said outgoing data streams or portions thereof;

   and

- a distribution block DB adapted to allow switching between said I/O ports and said adaptation functional blocks AFBs and configurable to provide a required connection between any of said I/O ports and any of said adaptation functional blocks AFBs.

2.   The switching device according to Claim 1, wherein the switching fabric is an ATM switch (ATM SF).

3.   The switching device according to Claim 1, wherein said AFB blocks form integral part of the switching fabric SF.

4.   The switching device according to Claim 1, wherein the distribution block DB comprises a cross-connect.

5. The switching device according to Claim 1, wherein the distribution block DB is configurable to interconnect between any of said I/O ports and any other of said I/O ports.

6. The switching device according to Claim 1, wherein the distribution block DB comprises one or more ingress/egress connections and is further configurable to interconnect any of said I/O ports to any of said ingress/egress connections thereby enabling traffic to exit said DB and access from outside to said DB.

7. The switching device according to Claim 6, comprising an additional switching fabric associated with an additional group of adaptation functional blocks AFB, the additional switching fabric being connectable to the I/O blocks via the ingress/egress connections of said DB.

8. The switching device according to Claim 7, wherein the additional switching fabric is of the same type as the basic switching fabric.

9. The switching device according to Claim 7, wherein the additional switching fabric is capable of handling internal data streams having a protocol other than the protocol of the internal data streams of the basic switching fabric.

10. The switching device according to Claim 1, wherein the DB is configurable to perform protection functions.

11.   The switching device according to Claim 1, adapted to handle the incoming data streams having protocol(s) selected from the following non-exhaustive list comprising: ATM, IP, Ethernet, PDH (TDM), SDH/SONET(TDM), Frame relay, Optical signals.

12.   The switching device according to Claim 1, wherein said distribution block DB is a TDM non-blocking matrix capable of switching PDH and SDH/SONET high order and low order data streams.

13.   The switching device according to Claim 1, wherein one of said adaptation functional blocks AFB is designed for implementing IMA adaptation function (Inverse Multiplexing over ATM).

14.   The switching device according to Claim 1, adapted for serving cellular communication networks.

15.   The switching device according to Claim 11, wherein said distribution block DB is a TDM non-blocking matrix capable of switching PDH and SDH/SONET high order and low order data streams, and wherein at least some of said I/O ports are provided with means for formatting the incoming data streams into the SONET/SDH format.

16.   An assembly to be used in a switching device, wherein the switching device is intended for inputting incoming data streams of arbitrary protocols via I/O blocks, converting the incoming data streams into internal data streams by adaptation functional blocks, handling the internal data streams in a switching fabric SF, converting the internal data streams into outgoing data streams of arbitrary protocols by the

adaptation functional blocks and outputting the outgoing data streams via the I/O blocks,

and wherein the assembly comprises the switching fabric SF integrally interconnected with a number of said adaptation functional blocks so that said I/O blocks are separated from said adaptation functional blocks thereby allowing for providing selective connections between said I/O blocks and said AFBs.

17. The assembly according to Claim 16, wherein the switching fabric SF is an ATM switching fabric ATM SF.

18. The assembly according to Claim 17, comprising at least one adaptation functional block capable of performing IMA function (Inverse Multiplexing over ATM) with respect to a number of the incoming/outgoing data streams.

19. A method of switching data streams in a switching structure comprising a number of I/O ports, a number of adaptation functional blocks AFBs, and a switching fabric SF, the method comprises the steps of:

inputting incoming data streams of arbitrary protocols via the I/O blocks;

formatting at least some of the incoming data streams to obtain all incoming data streams in a common format suitable for further distribution;

selectively distributing the thus formatted incoming data streams or portions thereof between the adaptation functional blocks so that any such incoming data stream or portion thereof is connectable to any AFB;

converting the thus formatted incoming data streams or portions thereof, into internal data streams by adaptation functional blocks AFBs;

handling the internal data streams at the switching fabric SF;

converting the internal data streams by the adaptation functional blocks into data streams formatted using the common format; and

distributing the thus obtained formatted data streams between the I/O bocks to be further outputted in arbitrary protocols.

20.   The method according to Claim 19, wherein the SF is an ATM SF, and the step of distribution is provided at the SDH/SONET (TDM) or PDH (TDM) format.

21.   The assembly according to Claim 16, wherein each AFB is capable of performing at least one of the following adaptation functions:

- converting one or more of said incoming data streams or of portions of said incoming data streams into one or more said internal data streams suitable for being handled in the SF; and

- converting one or more said internal data streams handled by the SF into one or more said outgoing data streams or portions thereof.